

11. (New) A piezoelectric actuator using a laminated piezoelectric device having alternately layered piezoelectric layers and electrode layers comprising:

a metal case provided on the outside of the side surface of the piezoelectric device; and

an insulating member provided between the piezoelectric device and the case, said insulating member being made of a piece separate from the piezoelectric device;

wherein the piezoelectric device has a polygonal or barrel-shaped cross section perpendicular to its extending-and-contracting direction.--

REMARKS

Upon entry of this amendment, claims 1-11 are pending. By the present amendment, claim 1 has been amended and new claims 9-11 have been added. Claim 9 corresponds to claim 3 rewritten in independent form, claim 10 corresponds to original claim 4, but depends from new claim 9 and new claim 11 corresponds to claim 6 rewritten in independent form.

Applicants appreciate the Examiner's indication that claims 3, 4 and 6 would be allowable if rewritten in independent form. To that end, new claim 9 corresponding to claim 3 rewritten in independent form, claim 10 corresponding to original claim 4, but depending from new claim 9 and new claim 11 corresponding to claim 6 rewritten in independent form have been added. Accordingly, these

new claims are allowable, and no further comment will be made with respect thereto.

The rejection of claims 1, 2-5, 7 and 8 under 35 U.S.C. § 103(a) over Grawey et al. (U.S. Patent No. 5,148,077, hereinafter "Grawey") in view of Berlincourt (U.S. Patent No. 4,051,396) is respectfully traversed. Without acquiescing in the rejection, claim 1 has been amended. Accordingly, the rejection will be discussed with respect to the claims as amended.

Grawey is directed to an encapsulated piezoelectric solid state motor stack having a plurality of piezoelectric disks interleaved with a plurality of electrodes.

Berlincourt is directed to an encapsulation structure to prevent fracture of piezoelectric high voltage mechanisms, wherein the piezoelectric element is coated or encapsulated in an insulating material that is sticky to the touch and relatively viscous.

Neither of the cited references disclose, teach or suggest a structure in which a space is formed between the piezoelectric device and the insulating member.

In complete contrast, the claimed invention specifically recites that a space is formed between the piezoelectric device and the insulating member (this feature is supported in the specification at, for example, page 9, line 34 - Page 10, line 13 and at page 11, lines 7-18). This specifically recited feature provides advantages heretofore unrealized in the prior art, for example, as set forth in the specification at page 11, lines 7-18.

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It is respectfully submitted that neither Grawey nor Berlincourt, either singly or in combination, disclose, teach or suggest the specifically recited space formed between the piezoelectric device and the insulating member of the claimed invention. Therefore, even if, arguendo, the combination of Grawey and Berlincourt were proper, the combination nevertheless fails to render the claimed invention obvious. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

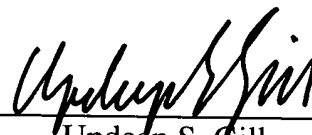
In view of the foregoing, it is respectfully submitted that the entire application is in condition for allowance. Favorable reconsideration of the application and prompt allowance of the claims are earnestly solicited.

Should the Examiner deem that further issues require resolution prior to allowance, the Examiner is invited to contact the undersigned attorney of record at the telephone number set forth below.

Respectfully submitted,

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MARKED-UP VERSION OF AMENDED CLAIM

1. (*Amended*) A piezoelectric actuator using a laminated piezoelectric device having alternately layered piezoelectric layers and electrode layers comprising:

 a metal case provided on the outside of the side surface of the piezoelectric device[,]; and

 an insulating member provided between the piezoelectric device and the case[; wherein], said insulating member being made of a piece separate from the piezoelectric device;

wherein a space is substantially formed between the piezoelectric device and the insulating member.

NEWLY ADDED CLAIMS

9. (New) A piezoelectric actuator using a laminated piezoelectric device having alternately layered piezoelectric layers and electrode layers comprising:

a metal case provided on the outside of the side surface of the piezoelectric device; and

an insulating member provided between the piezoelectric device and the case, said insulating member being made of a piece separate from the piezoelectric device, wherein said insulating member comprises a paper or resin sheet wound around the piezoelectric device.

10. (New) A piezoelectric actuator as set forth in claim 9, wherein at least overlapped portions of the wound sheet are adhered to each other.

11. (New) A piezoelectric actuator using a laminated piezoelectric device having alternately layered piezoelectric layers and electrode layers comprising:

a metal case provided on the outside of the side surface of the piezoelectric device; and

an insulating member provided between the piezoelectric device and the case, said insulating member being made of a piece separate from the piezoelectric device;

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wherein the piezoelectric device has a polygonal or barrel-shaped cross section perpendicular to its extending-and-contracting direction.